The series of fractions will be $2\frac{1}{2} \quad 2\frac{2}{5} \quad 2\frac{5}{12}$.........

Notice that in the following term, the numerator is the denominator of the previous term and the denominator is made changing the previous term into an improper fraction and using the numerator.

$$2\frac{2}{5} \quad 2\frac{5}{12}$$

$$5\times 2+2$$

So the next fraction will be $2+\dfrac{12}{12\times 2+5}=2\dfrac{12}{29}$

So we get $2\frac{1}{2} \quad 2\frac{2}{5} \quad 2\frac{5}{12} \quad 2\frac{12}{29} \quad 2\frac{29}{70} \quad 2\frac{70}{169} \quad 2\frac{169}{408}$.......

If we change these fractions into decimals we might see that they values approach a limit.

We can represent continued fractions in a code to save writing them out in full. The continued fraction above always had a "2" as the denominator.
It's code is [2;2,2,2,2,2,2]
The denominator does not always have to be the same.

[1;2,3,4,5,6] gives us $1+\cfrac{1}{2+\cfrac{1}{3+\cfrac{1}{4+\cfrac{1}{5+\cfrac{1}{6}}}}}$

There's no shortcut concerning numerators and denominators here – the value has to be worked out step by step

$5+\frac{1}{6}=\frac{31}{30}$

$4+\frac{6}{31}=\frac{130}{31}$

$2+\frac{130}{421}=\frac{1072}{421}$

$1+\frac{421}{1072}=\frac{1493}{1072}$